REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1.   <u>Claim Objections</u>

This objection has been addressed by changing "can be" to –are– in claim 8, and by changing "can discard" to –discards– in claim 10.

2.   <u>Rejection of Claims 6-10 and 17-19 Under 35 USC §112, 2nd Paragraph</u>

This rejection has been addressed by amending claim 8 to depend from claim 7 rather than claim 1, as suggested in item 3 on page 2 of the Official Action.

3.   <u>Rejection of Claims 1, 3-5, 7, and 13 Under 35 USC §102(b) in view of U.S. Patent No. 5,146,325 (Ng)</u>

This rejection is respectfully traversed on the grounds that the Ng patent does not disclose or suggest the feature, now positively recited in independent claim 1, of a still picture decoding device in which the frame buffer only stores a portion of the **macroblock lines** corresponding to the frame data of the still picture, and a **temporary buffer** is used to store the remaining **macroblock lines** (or at least "one other" macroblock line). By breaking up a frame into macroblock lines, and differentially storing the macroblock lines rather than simply storing **alternate fields** as in the Ng system, the claimed invention enables the use of a temporary buffer to store the lines not stored in the frame memory.

For example, in the claimed invention, the frame buffer might be used to store the even numbered macroblock lines, and the temporary buffer might be used to store the odd numbered macroblock lines, in which case the required frame memory is only half the size of a conventional frame memory. This can result in significant memory savings since a temporary buffer is typically smaller than a frame buffer, and yet no data is discarded so the resolution of the still picture is not affected.

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In contrast, in the system disclosed in the Ng patent, two same-size buffers are used to store alternately decoded odd and even **fields** rather than **macroblock** lines (see, col. 9, line 58 to col. 10, line 7 and Fig. 4, elements 47 and 48 of the Ng patent. This system provides no memory savings, and is incapable of real-time decoding of the still picture for display. Since the Ng patent does not disclose the claimed storage of **macroblock** lines in different types of memories, namely a frame buffer and a temporary buffer, but rather discloses storage of **fields** in same size frame memories, the Ng patent does not anticipate the claimed invention, and withdrawal of the rejection of claims 1, 3-5, 7, and 13 is respectfully requested..

4.   Rejection of Claims 1 and 2 Under 35 USC §103(a) in view of U.S. Patent Nos. 5,790,138 (Agarwal), 5,146,325 (Ng) and 5,790,138 (Hsu)

This rejection is respectfully traversed on the grounds that the Agarwal and Hsu patents, like the Ng patent, fail to disclose or suggest a still picture decoding device in which the frame buffer only stores a portion of the **macroblock lines** corresponding to the frame data of the still picture, and a temporary buffer is used to store other macroblock lines, or a decoding device in which the temporary buffer used to store the other macroblock lines is **smaller** than the frame buffer as positively recited in claim 2.

The Agarwal patent discloses a conventional frame decoding method for digital video rather than still images, in which "pseudo-interlaced" frames for display are formed by combining respectively decoded even and odd fields in two adjacent standard frames from which respective odd or even lines have been alternately discarded (as explained in the abstract and the description of Fig. 5 of the Agarwal patent). In other words, successive frames are formed from the even lines of one frame and the odd lines of the next frame. Because the remaining odd and even lines in successive frames are discarded rather than being stored in a temporary buffer, the display quality is seriously degraded. This is an example of the prior art discussed in the introductory portion of the present application, in which memory is saved by discarding lines.

On the other hand, as discussed above, the Ng patent merely teaches storage of alternate fields. This is the type of memory-wasting system that the Agarwal patent seeks to avoid by teaching that lines of alternate fields should be discarded to save memory. As a result, the Ng patent could not possibly have suggested modification of the system disclosed in the Agarwal patent. To the contrary, the Agarwal patent *teaches away* from the system disclosed in the Ng patent, and therefore one of ordinary skill in the art would have been disinclined to modify the system disclosed in Agarwal according to the teachings of Ng.

The Examiner is reminded that, as stated in **MPEP 2143.02** (page 2100-111):
If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification" (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Also as stated in **MPEP 2143.02**:

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious (citing In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)...*The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate" 123 USPQ at 352.* (See also, MPEP 2141.02, p. 2100-107 "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention (emphasis in the original).

It is respectfully submitted that the proposed modification of the Agarwal system, by adding a temporary buffer to store the lines discarded when forming pseudo-interlaced fields from even lines of one frame and odd lines of the next frame, is precisely the type of improper modification discussed in the MPEP, because it would render the system of Agarwal unsatisfactory for its intended purpose, and fails to properly consider the stated memory-saving objectives of the Agarwal system (Ng is not at all concerned with saving memory).

The Hsu patent does not make up for this deficiency since it discloses neither the alternate line concept nor the use of a temporary buffer to store some of the lines, but rather is directed to

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a memory architecture that uses an expansion frame buffer for use when the capacity of the frame buffer is insufficient to store and entire frame. Like the Agarwal patent, the Hsu patent is directed to video, but rather than discarding alternate lines in successive frames as taught by Agarwal (or dividing macroblocks of a still image between a frame buffer and a temporary buffer, as claimed), Hsu simply stores the overflow in anther frame buffer. Therefore, the Hsu patent also could not have suggested modification of the system of Agarwal, in which lines not used in the pseudo frame are intentionally discarded to save memory, to obtain the claimed invention by storing lines that would otherwise be discarded in a small temporary buffer.

Because the Agarwal, Ng, and Hsu patents fail to disclose or suggest, whether considered individually or in any reasonable combination, the claimed storage of different macroblock lines of a decoded image in a frame buffer and a temporary buffer, withdrawal of the rejection of claims 1 and 2 under 35 USC §103(a) is respectfully requested.

5. Rejection of Claims 8-12 Under 35 USC §103(a) in view of U.S. Patent Nos. 5,146,325 (Ng) and 5,903,282 (Schoner)

This rejection is respectfully traversed on the grounds that the Schoner patent, like the Ng patent, fails to disclose or suggest the claimed still picture decoding device in which the frame buffer only stores a portion of the **macroblock lines** corresponding to the frame data of the still picture, and a temporary buffer is used to store other macroblock lines.

Furthermore, the Schoner patent fails to disclose the inventive feature recited in claims 8-12 of cyclical reading operations of bit-stream data. Instead, in the system disclosed in the Schoner patent, FIFO pointers are used for reading or re-reading the image in a line rather than in a cycle, and there is no way to achieve the claimed cyclically repeated reading by pointers. As a result, withdrawal of the rejection of claims 8-12 under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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